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HINTS AND OBSERVATIONS Relative to the PREVENTION OF CONTAGIOUS FEVER, BY R. W. DISNEY THORP, M. D. Physician to the LEEDS INFIRMARY.

Principiis obsta; sero medicina paratur,
Cum mala per longas invaluere moras.

OVID.

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HINTS
and
OBSERVATIONS, &c.

THE proposals for a House of Recovery having met with so favorable a reception, I did not design to engage the public attention farther on the subject of Epidemic Fever, but to wait the event of a permanent Establishment for so salutary a purpose.

Prelimina-
ry Observa-
tions.

Circumstances, however, have occurred to alter my resolution, and to induce me to propose means for preventing its farther diffusion; since those already adopted have not produced the desired effect; and especially, as, after repeated endeavours continued to the present period, a temporary Building for the purpose has not yet been obtained.

In

In entering upon the proposed measures, I do not allude particularly, or principally, to the more indigent Classes of Society, as the means, pursued by the Committee appointed for their relief, have had all the good effects that could, under the present circumstances, be expected from wise measures, dictated by true and active Benevolence.

Yet, even from this source, I might draw very strong Inferences in favour of the urgent necessity there is for the speedy establishment of a House of Recovery.

In a visit, made a very few days ago to these Abodes of Misery, I saw, in one particular district, upwards of twenty-five Families ill in Contagious Fever. In some Houses two, in others six or seven were confined, many of whom appeared to be in extreme danger.

From

From a minute investigation into the nature of their complaints, I may safely assert, that a great majority of these might have been prevented by a timely removal of the first infected to a Fever Ward.

Let the measures adopted be ever so judicious, their complete execution is impossible in the confined Dwellings of those to whom I allude.*

In one Shed, the dimensions of which do not exceed ten feet in length, and from three to five in breadth, were confined a Mother and adult Daughter, both dangerously ill.

The

* It is very difficult, observes Dr. Ferriar, to eradicate the Fever, when it seizes a Family thus situated. The Convalescents, from their confinement in the midst of infection, have frequent relapses, attended with increasing danger, so that the disease continues in the same spot for several Months together. The recovery even of those, who do not relapse, is also tedious and imperfect, beyond the conception of any who have not experienced cases of this nature. The want of proper Nurses must be added, as none of the least evils attending this unfortunate class of people. I have no hesitation in asserting, that many lives are annually lost from this cause alone.

The following facts are introduced on the authority of Mr. Moxon, who is appointed to superintend the Sick Poor of the Town, and whose indefatigable exertions merit much praise.

Sixty Families in Epidemic Fever are under his care at this time. New Applications are daily making. In some families three; in others six or seven are in the disease. Forty Persons in Fever have applied to him for Medical Aid within the present week.

I could adduce many additional facts from my own personal observation--many on the authority of other Medical Gentlemen--but the recital would be afflicting to humanity, and could serve no useful purpose.*

These

* The Persons appointed to fumigate and whitewash the Houses of those affected with Fever, gave me a list of upwards of one hundred Houses that are daily fumigated.

These details may appear extraordinary to those who judge of the state of the Fever from the applications for relief at their doors; but their surprise will cease, when it is recollected, that every Patient in Fever is supplied with broth and wine at the discretion of the Medical Attendant, from a fund granted by the charitable contributions of the Inhabitants.

Yet, notwithstanding the due administration of these, and the other necessary means provided for relief, their good effects are too often superseded by the miserable accommodations of the Poor with respect to bedding, and by a total want of Ventilation in their narrow and crowded dwellings.

The following suggestions, however, do not owe their origin solely to the above considerations, but have likewise a more immediate reference to some recent instances,

ces, in which, owing to the negligence of
Domestics, or other causes, a Fever of the
same kind, but less violent in degree, has
been introduced into Families, whose habits
and situations in Life, by no means render
them liable to such an unwelcome Visitor.*
These instances have caused application to
be made to the Faculty for means of Pre-
vention, and, I trust, it will not be uninte-
resting or useless to point out such as expe-
rience has found to be successful.

In detailing facts of this sort, it is desira-
ble that speculative or theoretical opinions,
which tend rather to dazzle than to inform,
should be carefully avoided.

Should these observations tend, in any
wise, to prevent the farther progress of the
present

* Servants often introduce a Fever into a Family, who are unsuspicuous
of its approach, and generally unable to account for its origin.

Linen washed in a Poor Family infected with Fever, is another cause
of its being introduced into the Dwellings of the Rich.

present Epidemic, my intention will be fully answered.

To foresee danger is, in a great measure, to prevent it.

A brief history therefore of the Disease, such as it appeared at the Bed-side of the sick, may not inaptly precede the means proposed for its prevention.

History of
the Disease

Lassitude for a few days, soon followed by a sense of chilliness, alternating with slight gradations of heat, obtuse pain of the head, nausea, pain of the back, together with aversion to food, and inability for muscular exertion, mark the first deviations from a state of health.

This is the period when application ought to be made for Medical assistance, that the real nature and tendency of the Disease may not be misunderstood, nor Remedies misapplied.

B

At

At this juncture a brisk Emetic, together with a proper attention to the state of the Bowels, appropriate Diet and Regimen, and subsequent care to avoid the exciting causes, seldom fail to prevent disagreeable, and sometimes fatal consequences.

But, unfortunately, these means are too often neglected or postponed. The necessary avocations of business call off the attention, and, as the symptoms appear to be mitigated by sleep, and perhaps a gentle perspiration, produced by some domestic cordial, the Patient and his Friends, concur in attributing the Disease to a slight cold, which time and care may wear off.

If however, proper means be neglected, the Disease, insidiously, but no less certainly, augments its powers.

The Patient continues in the same state for two or three days longer, not sufficient-

ly

ly indisposed to be confined to bed, yet scarcely able to continue on foot.

At length the symptoms increase ; the cold shiverings are more frequent, and usually succeeded by a more violent and permanent degree of heat ; the head ach becomes more intense ; the Tongue dry and brown, and trembles when examined ; the naufea generally amounts to vomiting, though rarely any thing is brought up except viscid phlegm ; muscular soreness and debility increase, and an erect posture causes fainting. The Skin, which from the first, was dry and parched, now becomes hot, and commonly leaves on the finger an unpleasant sensation of burning. A mild delirium or incoherence of speech, is an early symptom, and often continues throughout the disease ; and such is the extreme prostration of strength, and the debilitating effects of the Disease so great

on

on the mental faculties, that fatuity, in some instances, continues for several weeks after the Patient is, in other respects, in a state of convalescence.

The Pulse is from the first, frequent, feeble, and sometimes irregular. The Urine sometimes pale and crude, often high coloured, but without sediment.

A Diarrhœa or looseness is an usual concomitant, which, although by no means critical, is not to be rashly stopped ; it will be sufficient that it be mitigated.

As the disease advances, the Tongue, which from the first, was dry and brown, is now, together with the teeth and lips, covered with a black sores, and the breath is extremely offensive. The Organs of hearing and vision are impaired ; picking of the bed clothes, twitching or starting of the tendons, livid and numerous

Petechiæ,

Petechiæ, involuntary excretions of Urine and Fæces ; Hiccup, constant delirium or complete insensibility, with general convulsions, close the melancholy scene. These are the usual symptoms, though they do not all occur in the same person. Some, for instance, labour under obstinate cogitiveness, particularly in the beginning ; others refer the chief seat of their complaint to a violent and fixed pain in the stomach and bowels ; whilst others make no particular complaint, but if questioned concerning the nature of their sensations, describe them as universally distressing, but cannot refer them to any particular part.

This disease, however, does not always commence in the mild manner above described. It sometimes attacks suddenly and violently, without any previous intimation of its approach.

In these Cases, the Patient generally compares the first impression to an earthy disagreeable smell, received into the Stomach, as from a grave newly opened, and the effects, shivering and sickness are instantaneous.

Something similar to this happened to an ingenious Surgeon and Apothecary of this Place, who fell an early Victim to his humanity ; and in whom the Poor have lost a kind and assiduous Friend.

After visiting an abode of Wretchedness, wherein were confined nine Persons, all labouring under the Disease, he immediately complained to me of this sensation, and, tho' an Emetic was administered, the Disease continued to gain ground, and to baffle the skill of Medicine.

There is seldom any thing peculiarly critical in this Fever. An early delirium, with suffusion

suffusion of the Face, and a considerable degree of determination of blood to the Head, are often unfavourable symptoms ; and though a very gentle Perspiration, soon after the commencement of the Fever, may be rather desirable, yet, when profuse, it reduces the strength, without producing a salutary solution of the Disease.

I mention this more particularly, because it is too general an opinion, that Perspiration, even when excessive, conduces to resolve putrid Fever, than which there is not perhaps a more fatal error.

Instances occur, in which there appears to be a peculiar determination to the Lungs, producing some of the symptoms of Inflammation of that Organ, and the mucus expectorated has a brown or reddish appearance, as if intimately mixed with blood ; yet a more close attention to the general aspect of the Disease, and the state of

of the Pulse, will evince the impropriety of Blood-letting (except topically by Leeches, in some few individuals, when indicated by a fixed or continued pain) since copious evacuations by the Lancet, render these cases highly dangerous, and often fatal.

I have thus given, as briefly as perspicuity would allow, a plain history of a Disease, formidable from the numbers affected, and the length of time which elapses before their recovery, rather than from the Mortality* which attends it, when properly conducted. For, when Medical aid has been resorted to in time, this Fever has not been very fatal, considering the numbers affected.

But, when we reflect, that out of a numerous Family, scarcely one escapes, and that after all danger is over, the Patient is left for weeks in a state of the greatest debility and emaciation, surely no exertions

can

* The Mortality appears to have increased within those few days.

can be too great, nor any plans superfluous, which propose, for so afflicting a **M**ad-lady, rational and experienced means of Prevention, to which I now proceed.

The first and most essential of these, I ^{Pure Air.} conceive to be cleanliness, and the free admission of pure Atmospheric Air.

I need not inform my Readers, that the Atmosphere consists of two very different kinds of Air, the one, eminently conducive to the purposes of Life, known to modern Chemists by the name of Oxygene ; the other, which is nearly three-fourths of the whole, is destructive to Life, and termed Azote.

On the due admixture of these two component parts of the Atmosphere, depend not only Respiration ; but the Circulation of the Blood, and all the phenomena of Life ; on the particulars of which it would

be foreign to my present purpose to expatiate. It will be sufficient to observe, that it is on the greater or less proportion of the Oxygenous part, that the phenomena of febrile Disease greatly depend. The same Fever, which in an airy, spacious, and well-ventilated apartment, assumes the form, and exhibits the signs of a mild Remittent, becomes in the abodes of Wretchedness, deprived of these advantages, a Fever of the most malignant kind.

That this difference arises from the want of a due renewal of Atmospheric Air, is evinced by what happened at Philadelphia, in the Yellow Fever of 1793. Of two thousand Persons, who were removed to Tents erected in the Fields, only seventeen died in twenty-five days; whilst, out of an equal number in Philadelphia, one hundred and seventy-eight perished.

For

For the purpose of procuring a ~~continual~~^{constant} supply of this necessary fluid, a Window should remain open in moderate weather, during the greater part of the day; or, perhaps, if the season be unusually cold, the Window of an adjoining Room or Passage may be sufficient.

And, here, it may not be superfluous to notice the advantages which attend the improved mode of constructing Windows, that, of causing them to open from the top. By this means pure Air may be introduced without injury to the Patient, as the cold external Air mixes with the warmer Air of the Room, before it is inspired; whereas, cold Air, that is immediately applied to the Lungs, without this admixture, is apt to bring on Catarrhal and other complaints.

A frequent, and no less powerful cause of Disease is likewise obviated; by thus avoiding

avoiding the partial currents of Air, to which may be referred so many instances of Rheumatism, Erysipelas, Deafness, &c.

In Rooms, the construction of which does not admit of this mode of Ventilation, it might be well to introduce a tube about three-fourths of an inch in diameter, into the upper part of the Room, to communicate with the external Air. This would not only purify the Air of the Room, but also obviate the ill effects, arising from the sudden change of temperature, experienced in removing from heated Rooms, to the cold Air of the Atmosphere.

Moisture.

But whilst we are solicitous to procure a constant and copious supply of fresh Air, we must sedulously guard against the ill effects of Moisture, than which, I am persuaded, there is not a more certainly predisposing cause of Febrile Disease.

Damp,

(

Damp Air increases the strength of Febrile Contagion, probably from the sickly state of body which it induces. By checking perspiration it disorders the Stomach, and proves a powerful Agent in the production of these as well as many other Diseases.

A moderate fire ought to be kept in the Patient's Room, during the night, with the twofold intention of airing the Room, and procuring a thorough Ventilation.

The Curtains ought never to be drawn farther than to shade the light from the Patient's Eyes, as this would tend to obstruct a free circulation of Air, which, I have shewn above, is so essentially necessary to the Sick.

All woollen Materials, such as Carpets, Rugs, &c. should be removed, as these are very apt to retain infection, besides the disadvantage of increasing the heat of the Room,

Curtains.

Carpets,
&c.

Room, which is to be avoided by every means in our power.

As a point of equal importance with pure Air, I would strongly inculcate the necessity of Cleanliness. It is an erroneous, but too commonly received opinion, that to change the linen, or to wash the hands and face of a Patient in Fever, will give him cold. Whereas, on the contrary, these salutary Operations not only impart the most grateful sensations to the Patient himself, but, by removing any infectious matter, that may have accumulated about his Person, tend greatly to diminish his own danger, and to prevent its being a source of Contagion to those around him.

Change of
Linen.

Upon the same principle I would enforce the Utility and Necessity of a frequent change of Linen, not only in this, but in every other Disease.

The

The perspiration even of the most healthy, acquires, from long confinement, noxious and acrid qualities ; how much more the effluvia arising from the bodies of Patients afflicted with putrid Diseases !

No Person, as far as I have observed, ever suffered from a proper change of dry and well aired linen ; but few will be disposed to deny, that typhous fever has frequently been aggravated by a neglect of this wholesome precaution.

The Advantages of washing or sponging the extremities, and indeed the whole body, are greater than can well be conceived by those who have not witnessed the effect.

Sponging
the Extre-
mities.

Many instances have occurred, in which Patients have evinced the most pleasurable sensations during this operation ; and as a proof of the utility attending it, gentle and refreshing sleep has often stolen upon the

senses,

senses, which before had been solicited in vain by the strongest Opiates.

Cold Affusion.

Modern Experience is daily establishing the Utility of the following measures, viz. - the Affusion of cold Water in stopping the progress of typhous fever, if applied on the second or third day after its attack. The Patient should be stripped naked, and four or five Gallons of cold Water thrown over him, he should then be dried and put to Bed. Sound refreshing sleep is generally the consequence, for several hours, and the Head-ach is, in a great measure, removed.

If the fever return in eight or ten hours, the Affusion must be repeated to the third or fourth time, if necessary ; but the fever is commonly removed at the *third*. It should be particularly impressed, that it is in the *early stage* of the low contagious fever, that this remedy is to be employed, and, generally, during the *greatest heat and exacerbation*,

exacerbation, not in the COLD OR SWEATING STAGE, and that the Water is to be applied in the form of *Affusion*, not that of Immersion.

When the foregoing cannot be conveniently complied with, *washing* the face, neck, hands and arms of the Patient, with *tepid Water and Vinegar*, with a towel twice a day, and, if the head be oppressed with Pain, using a warm pediluvium, or foot Bath, every night, and applying, at the same time, *cold water* to the Head with a sponge, will afford considerable Relief.

When a Fever is ascertained to be of a contagious nature, it becomes a duty we owe to ourselves and to the Community, to exclude all those whom motives of curiosity, or ill-timed, and often ill-expressed sympathy, induce to crowd around the Patient.

Visitors.

It is impossible for those, who are not accustomed to witness scenes of this kind, to conceive the strange propensity, which many of the lower Classes have, to intrude themselves into the Apartments of the Sick. Surely, if they would reflect a moment upon the impropriety of their conduct, they would forbear to distract the afflicted Sufferer, and to endanger their own lives, and the lives of all connected with them, by such thoughtless Obtrusion.*

Nurses.

When a steady and sensible Nurse, who has been accustomed to attend in the Sick Room, can be procured, she ought to be preferred, for the following reasons, namely, that Nurses of this description are generally advanced in years, habituated to fatigues,

* As a proof and illustration of the above remark, I shall quote a passage from Dr. Ferriar's Medical Histories and Reflections:—“ It may give a clearer idea of the extent of danger from the access of unnecessary Visitors, to mention, that an elderly Woman, just recovered from the Fever, informed me, that she had fifteen Children, all settled in the Town, and all of whom had undergone the Fever within these two Months.”

tigue and watching, and less susceptible of that agitation of spirits and anxiety of mind, which scenes of this sort are apt to produce in the tender and feeling Parent or Wife:

They appear also to be less obnoxious to contagious Diseases, perhaps on the same principle that Prisoners are proof against the Contagion of the Jail fever, viz. that their systems have been gradually and habitually saturated with the contagious effluvia.

There are however two essential requisites to the constituting of a proper Nurse, viz. a good moral character, and a placid cheerful disposition. Without these, whatever her other qualifications may be, she is incapable of making a good Nurse.— When the soothing balm of Hope is applied, much may be accomplished, even in the worst of Cases: but, when the desponding Patient, flying from his own sufferings for relief to those around him, meets in the countenance

countenance of his Nurse, the gloomy presages of despair, the utmost skill of the Physician will be exerted in vain. The human mind, naturally too much addicted to contemplate the dark side of Objects, is, when under the influence of Disease, the sport of every afflictive passion, and when, as in the present case, the mind and body sympathise in their sensations, surely it is our duty to administer, as far as it is in our power, every species of consolation.

By whomsoever this kind office is performed, it behoves the parties to use proper precautions, both for their own sakes, and that of the other branches of their families. We should be the last to deny to the anxious Mother, the consolatory duty of watching over the Child of her bosom, or of administering the cup of Health to a dear and beloved husband; but in discharging duties so congenial and grateful

grateful to an amiable and exalted mind, surely it behoves her not to add to the general distress by endangering her own life. The precautions therefore, inculcated to the Nurse, are still more necessary when this office is discharged by such near Connections.

As the clothes imbibe the effluvia from the Sick, and in this state are more apt to propagate Infection than even the Sick Person himself, it is highly necessary that the Nurse should change her clothes at least thrice a week.

Clothes im-
bibe Infec-
tion.

A celebrated professor of Medicine observes, "that Substances having been near the bodies of Men, are imbued with effluvia, in which substances these effluvia are sometimes retained in an active state for a very long time ; and it appears probable, that Contagions, as they arise from these Fomites,

Fomites, are more powerful than as they arise from the human body.*

Ablution.

It will greatly conduce to the prevention of Infection, if the Nurse be careful to wash her hands and face every morning and evening with clean cold water ; she must also wash her hands after assisting the Patient, or removing soiled Linen, &c. When occasions of this kind oblige her to come within the immediate current of the breath, or effluvia from the body, she may generally prevent any ill consequences, by a temporary suspension of Respiration, or by tying a handkerchief over the mouth and nose.

The Nurse ought never to eat or drink in the Apartment of the Sick, and it would be improper for her to take her Meals, or communicate

* A Medical Friend, on whose accuracy and discernment I can rely, gave me an instance of Fever, being introduced into a very respectable family in this Town, by a Servant improvidently putting on a Gown, which she had worn several weeks before, when ill in Fever.

communicate more than is necessary with the rest of the Family. If she cannot have a separate Room, she ought at least to wait till the Family has retired from the table.

Foul clothes, utensils, &c. should be immediately changed, immersed in cold water, and the clothes washed clean when taken out of it. This previous immersion is particularly necessary, as it is highly dangerous to inhale the steams that may arise from them.

Foul
Clothes.

All evacuations of the Patient must be removed without delay, as they frequently prove sources of infection. The Room, near the Bed-side especially, should be washed and dry-mopped every day, and were the Bed-posts sprinkled twice a week with diluted Marine Acid, it might tend to correct the infectious quality which wood is known to possess.

It.

It is absolutely necessary to avoid the current of the Patient's breath,* and the vapour arising from Perspiration or other evacuations, especially if the curtains be drawn close.†

It would be imprudent to sleep, or even sit, in a current of Air between an open door and window of the Sick Room. Although such situations may not convey the contagious effluvia, yet, as tending to endanger taking cold, they pre-dispose the body to receive infection.

It is highly dangerous to go into an infected Chamber fasting, and it is adviseable, upon coming out of it, to spit from the Mouth, and to blow from the Nose, any infectious

* Of this the Ægyptians are surprisingly careful. They never speak, when they meet, during the prevalence of the Plague, without turning away the Head, to avoid breathing upon each other. See VOLNEY.

† The Effluvia arising from the Patient's Evacuations are deemed the most dangerous; next to these, the Breath; and lastly, the Vapour ascending from his Body.

infectious matter that may have adhered to these parts, and afterwards to rinse the Mouth with cold Water, in which a little Alum has been dissolved.

As it is a custom with many to chew Calamus Aromaticus, Chamomile Flowers, Ginger, or even Tobacco, upon these occasions, it may not be superfluous to mention one precaution highly necessary, viz. that the Saliva should not, if possible, be swallowed whilst in these situations. For, as the infectious matter is first received into the Mouth, the Saliva will consequently be imbued with it, and, if taken into the Stomach, may be the means of introducing the poison into the body.

Avoid swallowing the saliva.

If, upon leaving the sick chamber, we were to expose ourselves for a few minutes to the open air, the danger would be lessened. The fresh air, whilst it dissolves, and dissipates the contagious particles, tends to

E invigorate

invigorate the Body, and to enable it to resist infection.

I hold it as an indispensable requisite, that the Diet of those, who are exposed to the debilitating influence of a Contagious Atmosphere, should be fully as generous, or rather more so, than usual. The abstraction of any considerable portion of such stimuli as the system has been daily used to, must weaken it, and consequently lay the foundation for disease.

A moderate portion of Animal food, with a few Vegetables, and good Malt liquor at dinner, succeeded by a few glasses of generous Port, to those accustomed to the use of Wine, is certainly adviseable. And if the body has been enfeebled by fatigue and watching, or the mind under the influence of increased anxiety, an additional glass of Port, or a teaspoonful or two of Huxham's Tincture of Bark, in a glass

glass of cold water, will prove an efficacious Cordial, and the best Preventive.

But, while the *moderate* use of these liquors tends to strengthen the Body, and prevent Disease, the abuse of Wine, or Spirits, has a contrary tendency, and produces the most baneful effects.

A moderate degree of warmth is essential to preserve the body in a state capable of resisting infection. When the perspiration is checked, and the secretions disordered, by a crude, damp state of the Atmosphere, the System will be readily pre-disposed to be acted upon by the exciting causes of febrile Contagion.*

Warm
Clothing,

Indeed, in a Climate so variable and inconstant as ours, it were much to be wished, that the Caprices of Fashion should give way to the Dictates of Prudence.—

Many

* It is in the sudden transition from cold to warm Weather, that the Constitution suffers the severest shock.

Many fair Victims, that are now sacrificed at the Shrine of Fashionable Indiscretion, would then be preserved a blessing to their Friends, and an Ornament to Society.

Exercise.

Moderate Exercise in the open Air, as tending to give tone to the System, and to strengthen the Organs of Digestion, is one great means of diminishing the danger from infection.

Reputed
Preserva-
tives.

It may not be superfluous to take a cursory view of some of the popular remedies used as Preventives, such as Camphire, Tobacco, Vinegar, &c.

These may undoubtedly possess a certain degree of antiseptic quality, but are by no means to be depended upon as Preventives of infection ; yet, if they increase the confidence of the attendants, their use should not be depreciated.

It

It was observed by Dr. Rush in the Yellow Fever of America, that Tobacconists, and those who used Snuff, were no less liable to the Disease than others.

But of all the Preservatives from infection, I consider none so effectual as a courageous benevolent Mind, such as that, which, for so many years, conducted the humane and intrepid HOWARD, through the abodes of Contagion, Wretchedness and Disease.

What is it but the same consciousness of duty, and a desire to prove, under Divine Providence, the instrument of Relief to an afflicted Fellow Creature, that fortifies the Medical Man against the pernicious and hazardous effects of infection? The most fatal consequences have arisen from indulging gloomy and desponding apprehensions. Fear operates as an excessively debilitating power on the human frame, and,

and, when acting in concert with the effects produced by animal effluvia, seldom fails to excite fever. It frequently happens, that those who have any particular dread of the complaint ; or are under the influence of the debilitating or depressing passions, as Grief, Fear, or the like, are the first seized with the infection ; while they, who enjoy tranquillity of mind, and have no apprehension of danger, commonly escape with impunity.

The rapid and surprising advances, which have been made in Chemistry within the last twenty years, have contributed to throw new light on the nature of Contagious Diseases, and to bring them more immediately under the control of the Physician.

To the doctrine of Airs, or what is termed Pneumatic Chemistry, we are indebted for the knowledge of many valuable facts in Philosophy and Medicine.

To this we owe the discovery of the powers of Oxygen Gas, in counteracting the effects of Contagion. This essential constituent of the Atmosphere, exists likewise, in a combined state, in most of the productions of Nature.* Different mineral substances give it out in large quantities.

The Oxyd, or Calx of Manganese, as being a cheap article of Commerce, easily procurable, and possessing the advantage of being readily decomposed, or divested of its Oxygenous principle, without the aid of heat, is preferable to Nitre.

The process for preparing this Gas is as follows :

To seven ounces of common Salt, add one ounce and a half of the Calx of Manganese. Pound them together, and add a sufficient quantity of Water to form the mass

* Sir Benjamin Thompson's Experiments prove, that the simple decomposition of certain rays of the Sun, in Water alone, is capable of producing this pure Air.

mass into a thin paste, (about two ounces and a half of Water will be sufficient.)--- Place the size of a Walnut of this paste in a tea-cup, add by degrees an equal quantity of strong Sulphuric Acid, (the Oil of Vitriol of the Shops,) and a large quantity of Oxygenated Muriatic Gas will be immediately extricated, which, uniting with the contaminated Atmosphere, will correct its noxious qualities, and render the Contagion inert. The Doors and Windows ought to be shut close during the operation. It will also supply to the nearly exhausted Patient, that vivifying principle, the abstraction of which may be considered as the immediate cause of his complaint.*

When breathed in a method somewhat similar to the above, its effects are to raise
the

* It is proved from the laborious and patient researches of a celebrated foreign Professor, that there is least Oxygen in the Atmosphere during the Month of March. This compared with the fact, that March is generally esteemed the most unhealthy Month in the Year, may explain the agency of Oxygen Gas, in the production of Health and Disease.

the Spirits, promote the circulation, increase the heat of the body, and heighten the colour of the blood.

As a portion of fixed air, or carbonic acid gas, is generated in a sick room, it would be proper to absorb it, by immersing a napkin in lime-water, and suspending it at a short distance from the floor; for, as the specific gravity of fixed air is greater than that of the Atmosphere, it will float towards the bottom of the room, unless disturbed by motion.

White-washing the Walls and Ceilings, where it can be done with convenience, is one great means of correcting Contagion. The Wash ought to be applied while bubbling hot, and if the lime be slaked in the sick room, the beneficial effects will be greater.

White-washing,

I purposely avoid entering into a discussion of the Medical means to be employed ; as these can only be applied with safety or success under the direction of proper advice.

I may, however, be allowed to state, that the liberal but judicious use of Port Wine, with yeast, and the proper application of cold Affusion, are the means best adapted to secure and confirm the beneficial effects to be derived from the due administration of Medicine.

May I be permitted to throw out the following hints, for the consideration of such Gentlemen as are Proprietors of the extensive Manufactories, of various kinds, in this populous Town ? How far might the plan I have proposed for oxygenating a Sick Chamber, be adopted with propriety on a more extensive scale in the works in question ?

Suppose

Suppose the dimensions of a room to be thirty feet long by twenty-five, and thirty feet high, it would contain twenty-two thousand five hundred cubic feet of air only; now, as each Individual would vitiate five cubic feet of air in one hour, it follows, that one hundred Persons in a room of these dimensions, would completely contaminate, or render the whole air of the Room unfit for Respiration in about four hours and a half. It will be evident, that, long before this period, the greater part of the Company would experience serious inconvenience, or even perish, if the Air of the Room were not constantly supplied from without. But, since, even in the best regulated Manufactories, this process cannot be carried on so completely as is necessary; and, in the Evening, when candles are introduced, and the Windows closed, the Ventilation must be still more imperfect, it certainly appears desirable to adopt other means

means of procuring a supply so essential to Life, and so necessary for correcting the contaminated Air of the Room. This, I apprehend, presents itself in the process I have proposed, and I am persuaded that the adoption of it would be attended with the most salutary effects.

The cheerful alacrity, and the renovated muscular energy, such a process would impart to the Workmen, would amply repay the slight trouble and expence that might attend it. One or two Boys, employed for a quarter of an hour, twice or thrice a day, would be sufficient to oxygenate the largest Room of the kind.*

I shall only remark farther, that, were the Children of the Poor to be stimulated by small rewards, or otherwise, to use the cold

* I proposed this mode to a very respectable Gentleman of this Town, several weeks ago, and I have the pleasure to find it has been adopted with success.

cold Bath twice a week; and could their Parents be induced to keep their Clothes whole, and their feet dry, it would greatly tend to invigorate the Constitutions of the rising Generation, and to counteract the evils inseparable from sedentary employments.

Before I conclude, I beg leave to quote the following from Dr. Ferriar, to whom and Dr. Haygarth I am indebted for much valuable information.

“ The beneficial effects of the House of Recovery are almost beyond belief: the facts are, however, established by authentic documents. The number of fever patients, in the pile of buildings in the neighbourhood of the House of Recovery, for the two preceding years and eight months, were 1256, something more than the average of 400 a year: those in the same district, from July 1796, (a period commencing two months after the establishment of

the

the House of Recovery) to July 1797, being twelve months, were only 26."

" In January 1796, (before the establishment of the House of Recovery) the whole number of home-patients, at the Manchester Infirmary, was 296, of which 226 were cases of fever: in January 1797, the number of their home-patients was 161, and of these only 57 were cases of fever."*

I have thus endeavoured to point out the expediency and utility of certain Preventives, an attention to which, will, I trust, contribute to check the farther diffusion of contagious fever among the higher and middle ranks of Society. They will also, in a great measure, promote this desirable end, among the Poor: but for more complete and efficacious

* The number of home-patients, from June 1795, to June 1796, was 2880; from June 1796, to June 1797, the number of home-patients was 1759; this shews, that 1121 persons were probably preserved from Infection, by the institution of the House of Recovery, in one year.

By "home-patients" are meant, poor persons, who are visited at their own houses by the Physicians of the Infirmary.

The expence of Paupers' coffins was diminished nearly one third the first year.

ficacious means, I look forward to the establishment of a HOUSE OF RECOVERY.

Confident only in the purity of my intentions, and craving the indulgence of Criticism, for a Composition, written on the urgency of the occasion, I now take my leave, in the pleasing hope, that this salutary measure may be speedily adopted, and in the firm conviction, that it is in the hands of those who are sincerely and anxiously desirous to promote whatever may be thought beneficial to the lower, but useful Classes of the Community.



